Pipeline & Utilities Construction

APRIL 1992

STATISTICAL REFERENCE INDEX C-1317 0
CONGRESSIONAL INFO SERVICE
4520 E WEST HWY
BETHESDA MD 20814-3389

Construction Safety Update

- Canadian Pipeline Report
- PLCA & PLCAC Reports
- Equipment Focus: Compaction Tools

Pipeline & Utilities Construction

APRIL 1992 VOLUME 47 NUMBER 4A

FEATURES

Are You Ready for Alcohol Testing? 33

OSHA's Excavation Safety Activities 36

Dealing with Safety in the '90s 38

Pace Bores With Efficiency 42

Water Line Puts Shoring to Test 45

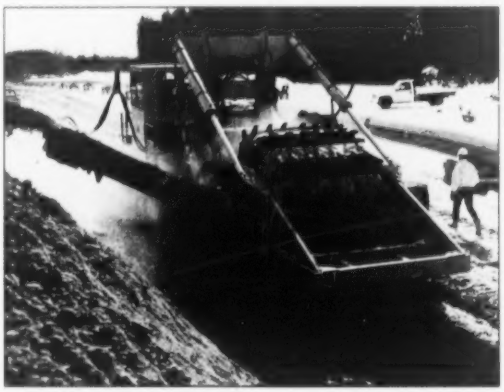
Majestic Wins Swamp Battle 48

PLCA Canada Convention Salute 58

PLCA Convention Report 62

DEPARTMENTS

Construction News 7
Canadian Report 20
International News 21
Personnel Update 25
Industry Update 29
Contracts Let/On the Job 51
Equipment Spotlight 78
Equipment Focus 72
Classified 68
Calendar 70



On the cover:

Majestic Pipeliners uses seven-foot wide bite of Trencor-Jetco 1084 trencher to cut through muskeg for TransCanada's 42-inch natural gas line in Ontario, Canada.

OSHA Excavation Safety Activities

By Charles Culver, Director
Office of Construction and Engineering
Occupational Safety and Health Administration

Trenching and excavation are inherently dangerous activities. Their most obvious danger comes from excavated side walls that can suddenly collapse without warning, trapping or killing workers. Other hazards at trenching sites arise from the operation of construction equipment in or adjacent to the excavation, hazardous atmospheres or oxygen deficiencies, water accumulation, falling rock or soil, falls, and vehicular traffic.

An OSHA study of construction fatalities for the five-year period from 1985 to 1989 indicated seven percent of the 3,500 deaths investigated by the agency in all industries were associated with trenching and excavation. An average of 50 workers were killed each year during the period of the study.

The study went on to show that nearly 40 percent of trenching fatalities occurred in trenches less than 10 feet deep and 79 percent occur in trenches less than 15 feet deep (see Figure 1).

It is important to realize that trenching deaths are almost totally preventable with reasonable care and proper equipment. As an initial step to address the problem of trenching deaths and to prevent the conditions that produce them, OSHA published a revised standard covering excavations in the Federal Register on October 31, 1989. The effective date of the standard was April 1, 1990.

This failed excavation in Washington, D.C. is the subject of a major OSHA report on unsafe shoring practices.

The standard defines excavations, including trenches; sets out general requirements for the protection of employees in excavations; and describes requirements for protective systems (see Standard in Brief, below).

The primary purpose of the revisions is to clarify the requirements so that firms can tailor their protective measures to their particular situations while still providing adequate employee protection.

The revised standard uses performance criteria where possible, rather than specification requirements, and it provides a consistent method of soil classification. Soil classification is necessary because virtually all protective systems are based on soil type and other environmental conditions at the site.

The revised standard allows construction projects more flexibility since it provides four options for sloping and four options for shoring (including using trench shields).

In April 1990, OSHA launched an extensive outreach program on the standard. Working with trade associations, professional groups, and labor organizations, the agency held education sessions around the country to familiarize the construction industry with the guidelines and intent of the document. More than 12,000 industry representatives participated.

In the two years since it came into effect, OSHA has vigorously enforced the excavation standard. For the period

April 1990 to February 1992, OSHA cited construction organizations with more than 10,000 violations of the standard. Eighty percent of these violations were classified as serious, five percent were considered willful, five percent were repeat violations, and ten percent were other classifications.

During this same time period, OSHA also investigated 49 excavation construction accidents involving fatalities.

The sections of the standard that are most frequently cited in this period were:

• protection of employees in excavations — 29CFR1926.652(a)(1)

• inspections — 29CFR1926.651(k)(1)

• access and egress/structural ramps — 29CFR1926.651(c)(1)

• protection of employees from loose rock or soil — 29CFR1926.651(j)(2)

Citations most often result in a fine against the contractor for practices that could endanger workers' safety on the job site. In some cases, criminal prosecutions have been pursued for violations of the standard. In one case in Kansas, involving a worker killed in a trench collapse, a businessman pleaded guilty to one criminal charge of willful failure to comply with the standard. He was fined $7,500 and given probation and a four-month suspended jail sentence. He was also required to develop and promote an excavation safety program working with the Kansas Contractors Association.

Because trench safety is an ongoing concern, OSHA staff members are available to address the technical issues associated with excavations. The staff includes engineers in OSHA field offices around the country, members of the Directorate of Safety Standards in the national office, and professional engineers with geotechnical expertise in the Office of Construction and Engineering (OCE), also located in the national office.

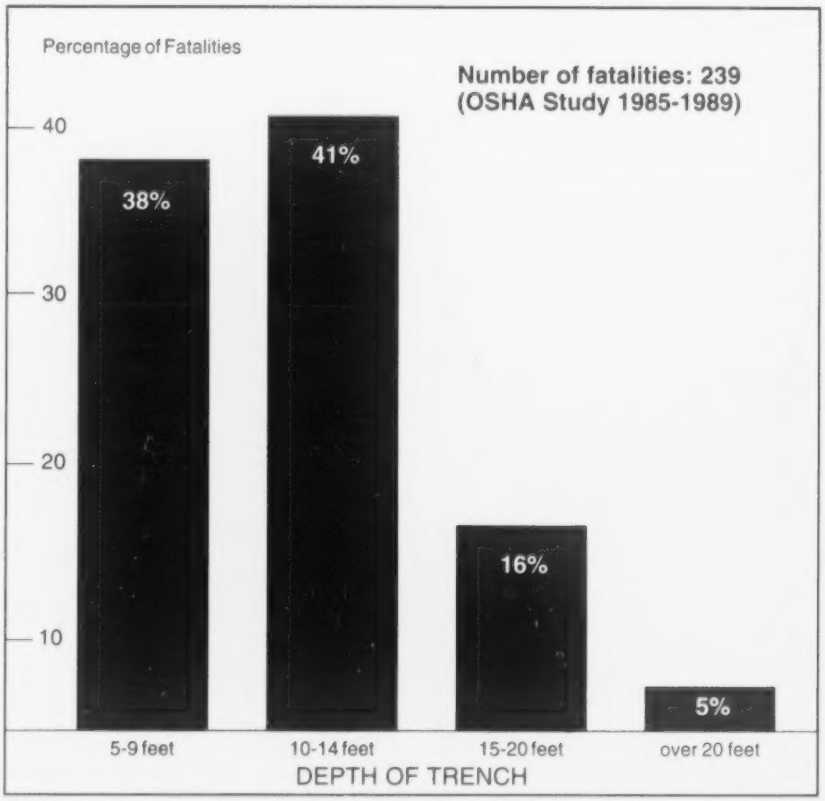


Figure 1: Analysis of trenching fatalities.

The OCE staff provides assistance to the field in responding to complex technical issues that arise. The office also investigates major construction accidents to determine their causes. In May 1991, for example, the office published a reort on the investigation of a major excavation failure tht occurred in Washington D.C. in Novemver of 1990. Results from these investigations are published and distributed to the construction industry in an effort to improve safety and prevent recurrence.

The office is also working with construction industry groups to address technical issues. For example, they are cooperating with the National Utility Contractors Association (NUCA) and OSHA field staff on design requirements for trench boxes.

In the future, OSHA will continue to enforce the excavation standards to ensure a safer workplace, and we will also work with construction groups to discover ways to improve excavation safety.

SOURCES OF HELP

• For self-help, refer to OSHA General Industry Standards (CFR parts 1900-1910) and OSHA construction Standards (CFR Part 1926). Together these sections include all OSHA job safety and health rules and regulations covering construction. (OSHA publication 29 CFR 1926/1910, OSHA 2207, Revised 1991.)

• For information on OSHA-funded free consultation services call the nearest OSHA area office. It is listed in telephone directories under "U.S. Labor Department" or under the state government section in those states where the state administers its own OSHA programs.

• The OSHA Safety and Health Training Guidelines for Construction are a set of 15 guidelines to help construction employers establish training programs in the safe use of equipment, tools, and machinery on the job. The guidelines are available as Order No. PB-239-312/AS from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4650